4. A furniture designer has produced a 3D CAD illustration of a new table design. The furniture designer needs to prepare the design for manufacture.

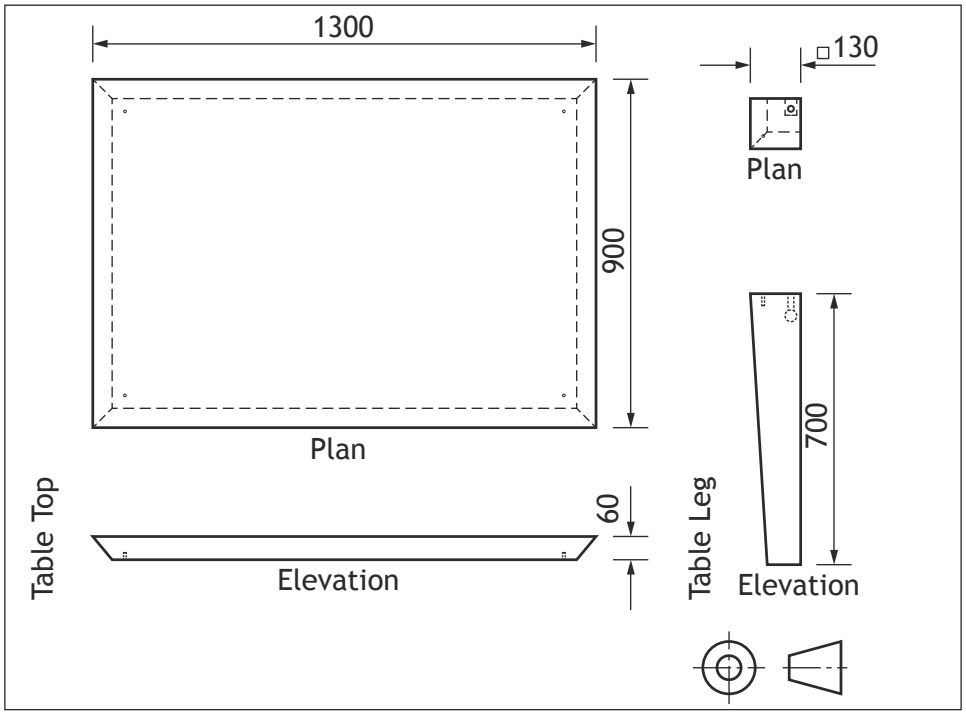


Figure 1

The component drawing of the table top and legs, in Figure 1, are drawn to a scale.

(a) Measure and calculate the scale used for Figure 1. **1**

4. (continued)

The manufacturer has recommended that tolerances be applied to components of the table. They have suggested the following tolerances;

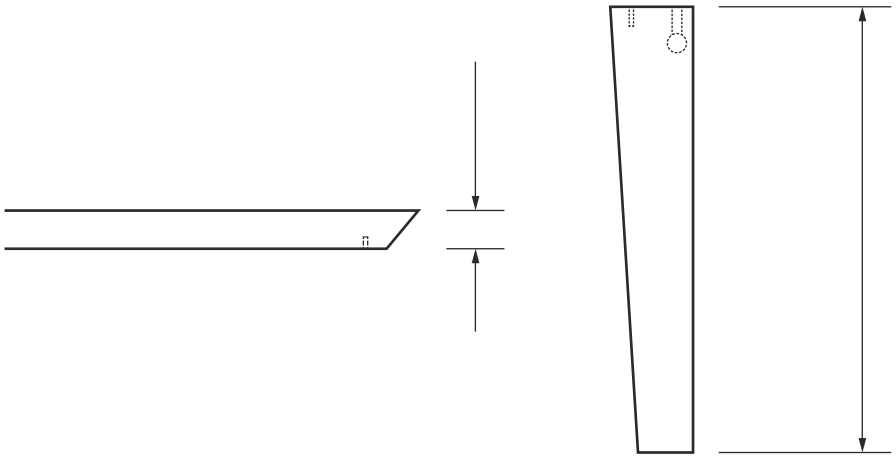
Length of table leg +1·5mm and −0·5mm

Thickness of table top +2·5 mm and −1·5mm

(b) Calculate the maximum and minimum allowable heights of the fully assembled table after applying the tolerances. **2**

Maximum height _____ mm Minimum height _____ mm

(c) Apply the dimensional tolerances to the views below using the correct British Standard conventions. **2**



4. (continued)

Knock-down fittings are commonly used in flat-pack furniture design as they make furniture easy to assemble; they require no specialist skills and are easily mass produced. Shown below are the component drawings for two of the most common knock-down fittings used by the retailer (figures 2 and 3) and extracts from the draft assembly instructions (figures 4 and 5).

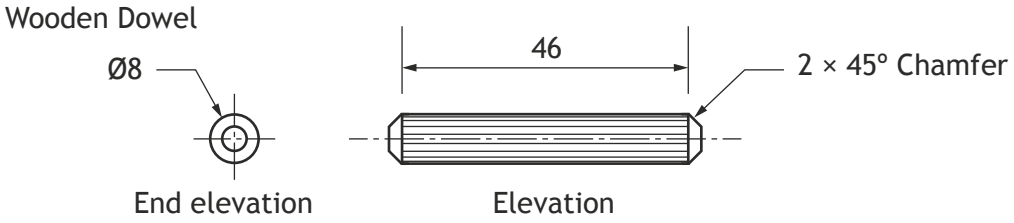


Figure 2
(not to scale)

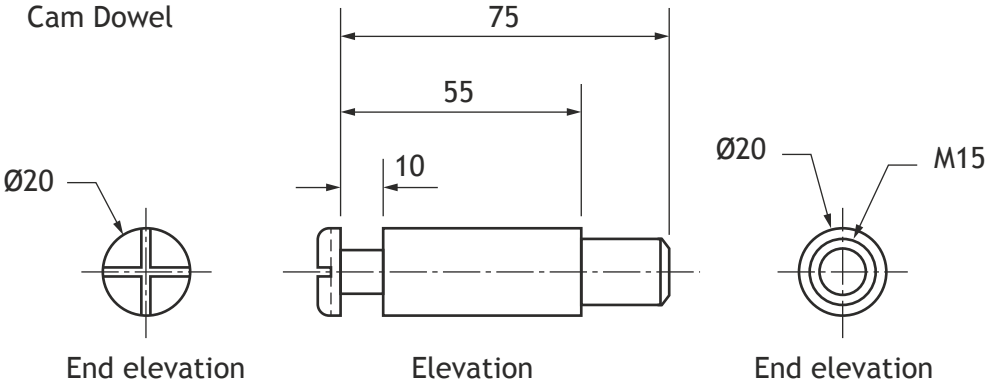


Figure 3
(not to scale)

Figure 4

Exploded view of assembly method

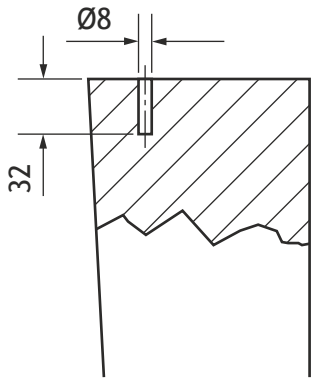


Figure 5

Enlarged technical drawing of dowel joint (not to scale)

4. (continued)

The component drawing for the Cam Dowel is incomplete.

(d) Apply the British Standard conventions for the screw threads in each view in Figure 6 below. **2**

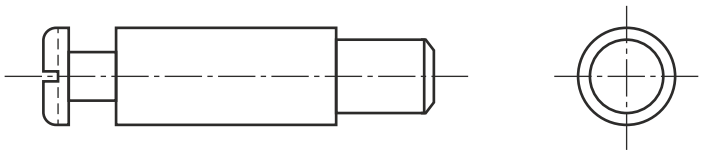


Figure 6

In preparation for manufacture of the table top, the furniture designer has been asked to specify some measurements.

(e) Calculate how far the wooden dowel protrudes from the table leg when fully inserted. **1**

_____ mm

(f) Calculate the minimum depth of hole required to be drilled in the table top to accommodate the Cam Dowel. **1**

_____ mm

(g) State the type of linear dimensioning used in the elevation view of the Cam Dowel in Figure 3. **1**

_____

(h) State the type of the sectional view in Figure 5. **1**

_____